

Amendments to the Claims:

Claims 1-28 (Cancelled).

29. (Currently Amended) A method of measuring a thickness of a film on a substrate, said method comprising:

supplying a jet of light-transmitting liquid through a nozzle towards the film, the nozzle being positioned so as to form a gap between a distal end of the nozzle and a plane of a polishing surface for polishing the film;

emitting light from a distal end of at least one optical fiber arranged within the nozzle so that the light travels through the light-transmitting liquid towards the film and is reflected by the surface of the film, the distal end of the nozzle being closer to the film than the distal end of the at least one optical fiber;

receiving the light reflected from the film and passing through the light-transmitting liquid into the at least one optical fiber arranged within the nozzle; and

measuring the thickness of the film based on the light reflected by the film.

30. (Currently Amended) ~~The method of claim 29;~~ A method of measuring a thickness of a film on a substrate, said method comprising:

supplying a jet of light-transmitting liquid through a nozzle towards the film, the nozzle being positioned so as to form a gap between a distal end of the nozzle and a plane of a polishing surface for polishing the film, wherein said supplying of the light-transmitting liquid comprises supplying the light-transmitting liquid in a supply direction;

emitting light from at least one optical fiber arranged within the nozzle so that the light travels through the light-transmitting liquid towards the film and is reflected by the surface of the film;

receiving the light reflected from the film and passing through the light-transmitting liquid into the at least one optical fiber arranged within the nozzle;

measuring the thickness of the film based on the light reflected by the film; and

~~, further comprising~~ recovering the light-transmitting liquid such that the light-transmitting liquid flows in a recovery direction during said recovering, the recovery direction being substantially parallel to the supply direction.

31. (Previously Presented) The method of claim 29, wherein the at least one optical fiber comprises a light-emitting optical fiber for emitting the light, and comprises a light-receiving optical fiber for receiving the light.

32. (Previously Presented) The method of claim 29, wherein the at least one optical fiber comprises a single light-emitting/light-receiving optical fiber for emitting and receiving the light.

33. (Currently Amended) ~~The method of claim 29;~~ A method of measuring a thickness of a film on a substrate, said method comprising:

supplying a jet of light-transmitting liquid through a nozzle towards the film, the nozzle being positioned so as to form a gap between a distal end of the nozzle and a plane of a polishing surface for polishing the film, wherein an inner surface of the nozzle has a mirror finish;

emitting light from at least one optical fiber arranged within the nozzle so that the light travels through the light-transmitting liquid towards the film and is reflected by the surface of the film;

receiving the light reflected from the film and passing through the light-transmitting liquid into the at least one optical fiber arranged within the nozzle; and

measuring the thickness of the film based on the light reflected by the film.

Claims 34-47 (Cancelled).

48. (Currently Amended) An apparatus for measuring a thickness of a film on a substrate, said apparatus comprising:

a polishing surface for polishing a surface of the film;

a conduit for supplying a jet of light-transmitting liquid from a distal end thereof towards the film, said conduit being arranged so as to form a gap between said distal end of said conduit and a plane of said polishing surface; and

at least one optical fiber arranged within said conduit for emitting light from a distal end thereof towards the film through the light-transmitting liquid, and for receiving the light reflected from a surface of the film and passing through the light-transmitting liquid, wherein said at least one optical fiber is connected to a component for measuring a thickness of the film based on the light reflected from the surface of the film, wherein said at least one optical fiber and said conduit are arranged such that said distal end of said conduit is closer to the film than said distal end of said at least one optical fiber.

49. (Currently Amended) The apparatus of claim 48, wherein said at least one optical fiber comprises a light-emitting optical fiber having a distal end arranged within said conduit so as to direct the light towards the film through the light-transmitting liquid, and comprises a light-receiving optical fiber having a distal end arranged within said conduit so as to receive the light reflected from the surface of the film and passing through the light-transmitting liquid, ~~said distal end of said conduit being closer to the film than said distal end of each of said light-emitting optical fiber and said light-receiving optical fiber.~~

50. (Currently Amended) The apparatus of claim 48, wherein said at least one optical fiber comprises a single light-emitting/light-transmitting optical fiber having a distal end arranged within said conduit so as to emit light toward the film and so as to receive the light reflected from the surface of the film, ~~said distal end of said conduit being closer to the film than said distal end of said light-emitting/light-transmitting optical fiber.~~

51. (Currently Amended) ~~The apparatus of claim 48;~~ An apparatus for measuring a thickness of a film on a substrate, said apparatus comprising:
a polishing surface for polishing a surface of the film;

a first conduit for supplying a jet of light-transmitting liquid from a distal end thereof towards the film, said first conduit being arranged so as to form a gap between said distal end of said first conduit and a plane of said polishing surface;

at least one optical fiber arranged within said first conduit for emitting light towards the film through the light-transmitting liquid, and for receiving the light reflected from a surface of the film and passing through the light-transmitting liquid, wherein said at least one optical fiber is connected to a component for measuring a thickness of the film based on the light reflected from the surface of the film; and

~~wherein said conduit comprises a first conduit for supplying the light-transmitting liquid, further comprising a second conduit for recovering the light-transmitting liquid, said first conduit being arranged within said second conduit such that the light-transmitting liquid flowing through said first conduit is separated from the light-transmitting liquid flowing through said second conduit by a wall of said first conduit.~~

52. (Currently Amended) ~~The apparatus of claim 48;~~ An apparatus for measuring a thickness of a film on a substrate, said apparatus comprising:

a polishing surface for polishing a surface of the film;

a conduit for supplying a jet of light-transmitting liquid from a distal end thereof towards the film, said conduit being arranged so as to form a gap between said distal end of said conduit and a plane of said polishing surface, wherein an inner surface of said conduit has a mirror finish; and

at least one optical fiber arranged within said conduit for emitting light towards the film through the light-transmitting liquid, and for receiving the light reflected from a surface of the film and passing through the light-transmitting liquid, wherein said at least one optical fiber is connected to a component for measuring a thickness of the film based on the light reflected from the surface of the film.

Claims 53-69 (Cancelled).

70. (Currently Amended) An apparatus for treating a substrate having a film on a surface of the substrate, said apparatus comprising:

a polishing surface for polishing a surface of the film formed on the substrate;

a holder for holding the substrate; and

a film thickness measurement device for measuring a thickness of the film formed on the substrate, said film thickness measurement device comprising:

a conduit for supplying a jet of light-transmitting liquid from a distal end thereof towards the film, said conduit being arranged so as to form a gap between said distal end of said conduit and a plane of said polishing surface; and

at least one optical fiber arranged within said conduit for emitting light from a distal end thereof towards the film through the light-transmitting liquid, and for receiving the light reflected from a surface of the film and passing through the light-transmitting liquid, wherein said at least one optical fiber is connected to a component for measuring a thickness of the film based on the light reflected from the surface of the film, wherein said at least one optical fiber and said conduit are arranged such that said distal end of said conduit is closer to the film than said distal end of said at least one optical fiber.

71. (Currently Amended) The apparatus of claim 70, wherein said at least one optical fiber comprises a light-emitting optical fiber having a distal end arranged within said conduit so as to direct the light towards the film through the light-transmitting liquid, and comprises a light-receiving optical fiber having a distal end arranged within said conduit so as to receive the light reflected from the surface of the film and passing through the light-transmitting liquid, ~~said distal end of said conduit being closer to the film than said distal end of each of said light-emitting optical fiber and said light-receiving optical fiber.~~

72. (Currently Amended) The apparatus of claim 70, wherein said at least one optical fiber comprises a single light-emitting/light-transmitting optical fiber having a distal end

arranged within said conduit so as to emit light toward the film and so as to receive the light reflected from the surface of the film; ~~said distal end of said conduit being closer to the film than said distal end of said light-emitting/light-transmitting optical fiber.~~

73. (Currently Amended) ~~The apparatus of claim 70;~~ An apparatus for treating a substrate having a film on a surface of the substrate, said apparatus comprising:

a polishing surface for polishing a surface of the film formed on the substrate;

a holder for holding the substrate; and

a film thickness measurement device for measuring a thickness of the film formed on the substrate, said film thickness measurement device comprising:

a first conduit for supplying a jet of light-transmitting liquid from a distal end thereof towards the film, said first conduit being arranged so as to form a gap between said distal end of said first conduit and a plane of said polishing surface;

at least one optical fiber arranged within said conduit for emitting light towards the film through the light-transmitting liquid, and for receiving the light reflected from a surface of the film and passing through the light-transmitting liquid, wherein said at least one optical fiber is connected to a component for measuring a thickness of the film based on the light reflected from the surface of the film; and

~~wherein said conduit comprises a first conduit for supplying the light-transmitting liquid, further comprising a second conduit for recovering the light-transmitting liquid, said first conduit being arranged within said second conduit such that the light-transmitting liquid flowing through said first conduit is separated from the light-transmitting liquid flowing through said second conduit by a wall of said first conduit.~~

74. (Previously Presented) The apparatus of claim 70, further comprising a turntable having said polishing surface formed thereon, said holder being operable to hold the substrate in contact with said polishing surface to polish the substrate, said conduit being arranged to extend through said turntable.

75. (Currently Amended) ~~The apparatus of claim 70;~~ An apparatus for treating a substrate having a film on a surface of the substrate, said apparatus comprising:

a polishing surface for polishing a surface of the film formed on the substrate;

a holder for holding the substrate; and

a film thickness measurement device for measuring a thickness of the film formed on the substrate, said film thickness measurement device comprising:

a conduit for supplying a jet of light-transmitting liquid from a distal end thereof towards the film, said conduit being arranged so as to form a gap between said distal end of said conduit and a plane of said polishing surface, wherein an inner surface of said conduit has a mirror finish; and

at least one optical fiber arranged within said conduit for emitting light towards the film through the light-transmitting liquid, and for receiving the light reflected from a surface of the film and passing through the light-transmitting liquid, wherein said at least one optical fiber is connected to a component for measuring a thickness of the film based on the light reflected from the surface of the film.